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Comparison of the effects of sertraline and L-carnitine on intradialytic hypotension; a double blind clinical trial

Sanaz Jamshidi[1], **Sepideh Hajian**[2*], **Nafiseh Rastgoo**[1], **Navid Mohammadi**[3]

[1]Qazvin University of Medical Sciences, Qazvin, Iran
[2]Department of Nephrology, Velayat Hospital, Qazvin University of Medical Sciences, Qazvin, Iran
[3]Department of Family and Community Medicine, School of Medicine, Qazvin University of Medical Sciences, Qazvin, Iran

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ABSTRACT

Introduction: Although some studies have reported the positive effect of sertraline and L-carnitine on intradialytic hypotension (IDH), a common complication of dialysis, however the results are controversial.

Objectives: The aim of this study was to compare the effects of sertraline and L-carnitine on blood pressure in patients with chronic renal failure who were undergoing dialysis.

Patients and Methods: This double-blind clinical trial was conducted on 32 hemodialysis patients who suffered from IDH in more than 50% of dialysis sessions. Patients were randomly divided into two groups of sertraline (50 mg daily) and L-carnitine (1000 mg daily), with 16 patients in each group. Duration of treatment was four weeks, then patients were followed up for additional three weeks. The changes in patients' blood pressure were monitored in each group and the results compared between the two groups.

Results: Of all, 18 patients (56%) were female, 14 patients (44%) were male, and their mean (SD) age was 60 ± 15 years. At the end of the study, mean systolic blood pressure (SBP), mean diastolic blood pressure (DBP), and mean arterial pressure (MAP) were significantly increased in both the sertraline and L-carnitine groups ($P < 0.05$). In addition, nadir SBP, nadir DBP, and nadir MAP in each group were significantly increased compared to pre-treatment period ($P < 0.001$). An increase of more than 5 mm Hg in SBP, DPB, and MAP was observed in half of the subjects in the sertraline group and more than two-thirds of the patients in the L-carnitine group, however there was no significant difference between the two groups ($P > 0.05$).

Conclusion: The findings of this study showed that the administration of sertraline or L-carnitine for one month could significantly increase SBP, DBP, MAP, and nadir blood pressures in dialysis patients suffering from IDH during dialysis sessions because there was no significant difference between the two drugs.

Trial Registration: The trial protocol has been registered by the Iranian registry of clinical trial (IRCT20190624043997N1; https://irct.ir/trial/40941, ethical code # IR.QUMS.REC.1397.128).

Implication for health policy/practice/research/medical education:
In a double blind clinical trial on 32 hemodialysis patients who suffered from intradialytic hypotension, in more than 50% of dialysis sessions, we found that the administration of sertraline or L-carnitine for one month could significantly increase the mean systolic blood pressure, mean diastolic blood pressure, and mean arterial pressure and also nadir blood pressures while there was no significant difference between both drugs.

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Introduction

Although dialysis is an effective method for the management of end-stage kidney disease (ESKD), it is associated with some complications, including intradialytic hypotension (IDH). There is no consensus regarding the definition of IDH, but the Disease Outcomes Quality Initiative (KDOQI) defines this condition as a decrease of 20 mm Hg or more in systolic blood pressure (SBP) or a decrease of 10 mm Hg or more in mean arterial pressure (MAP) requiring therapeutic interventions (1). The incidence of symptomatic hypotension during or immediately after dialysis is reported in 5%–30% of all dialysis sessions (2,3). Moreover, some patients experience IDH in more than 50% of their dialysis sessions (4).

***Corresponding author**: Sepideh Hajian, Email: s.hajian@qums.ac.ir

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